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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,194	09/29/2000	Gary D. Zimmerman	MP0965 (13036/4)	1444
60537	7590	01/24/2007	EXAMINER	
BRINKS HOFER GILSON & LIONE/MARVELL P.O. BOX 10395 CHICAGO, IL 60610			PHAM, THIERRY L	
			ART UNIT	PAPER NUMBER
			2625	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/24/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/675,194	ZIMMERMAN, GARY D.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thierry L. Pham	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 15 December 2006.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 9,10,12-14,30-33 and 36-42 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 9-10, 12-14, 30-33, 36-42 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

DOUGLAS Q. TRAN  
 PRIMARY EXAMINER

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO/SB/08)  
     Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
     Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**DETAILED ACTION**

- This action is responsive to the following communication: an Amendment filed on 12/15/06.
- Claims 9-10, 12-14, 30-33, 36-42 are being considered; claims 1-8, 21-29 have been withdrawn from consideration; claims 11, 15-20, and 34-35 have been canceled.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 30-33, 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young No (US 6587140) and Zelno et al (US 5989051).

Regarding claim 30, Young No discloses a printer controller (printer controller incorporated within PC card 7, figs. 1-2, col. 2, lines 1-37 and col. 4, lines 39-62) configured to receive the printer controller ready data (image data from external device, fig. 1, col. 2, lines 1-38) from the printer controller ready data interface and to generate the print engine ready data (converting to print ready format, col. 4, lines 39-42) for transmission to the print engine ready data interface.

However, Young No fails to teach and/or suggest a printer controller is disposed entirely within a single continuous cable, wherein a continuous cable is having a first connector and second connector.

Zelno, in the same field of endeavor for PC card, teaches a well-known example of a printer controller is disposed entirely (electronic components 704s of PC card controller circuit 702 of fig. 7 is disposed entirely within a single continuous cable, fig. 1, col. 3, lines 35-40 and col. 4, lines 13-25) within a single continuous cable (cable 10, fig. 1), wherein a continuous cable is having a first connector and second connector (fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify invention (i.e. printer controller of PC card 7) of Young No to disposed entirely within a single continuous cable as taught by Zelno because it prevents PC card controller circuit from damaging from constant pulling (col. 3, lines 20-25 of Zelno) and to reduce electromagnetic transmission that a PC card circuit components may interfere with other circuits or devices (col. 4, lines 13-25 of Zelno).

Therefore, it would have been obvious to combine Young No with Zelno to obtain the invention as specified in claim 30.

Regarding claim 31, Young No further teaches: a cable format conversion mechanism for converting signals (signals conversion, col. 4, lines 39-42) in a first format into corresponding signals in a second format, the cable format conversion mechanism within the single continuous cable.

Regarding claim 32, Young No further teaches: a multiple target device support mechanism for support at least two different types of target devices (col. 3, lines 34-35), the multiple target device support mechanism within the single continuous cable.

Regarding claim 33, Young No further teaches the multiple target device support mechanism further comprises:

a laser printer interface for providing an interface to a laser printer (col. 3, lines 34-35);  
a non-impact printer interface for providing an interface to a non-impact ink printers (col. 3, lines 34-35); and

a common formatting circuit coupled to the laser printer interface and the non-impact printer interface for providing functions to the laser printer interface and the non-impact printer interface (PC card 7 is compatible with plurality of different types of printers, col. 3, lines 34-35).

Regarding claim 36, Zelno further teaches wherein ready data interface comprises one of an industry standard computer port interface (col. 3, lines 39-40), a parallel port

interface, a serial port interface, IEEE 1284 parallel port interface, a USB serial port interface, and an Ethernet interface.

Regarding claim 37, Zelno further teaches print engine ready data interface comprises one of a parallel port interface (col. 3, lines 39-40), a serial port interface, an IEEE 1284 parallel port interface, a USB serial port interface, an Ethernet interface, and a custom interface.

Regarding claim 38, Young No further teaches wherein the printer controller comprises a printer controller program (col. 4, lines 39-42) for generating the print engine ready data, the printer controller program stored in a memory consisting of volatile memory (EEPROM 96, col. 4, lines 39-42).

Regarding claim 39, Young No further teaches wherein the printer controller is configured to send commands (col. 4, lines 65-67) to a print engine, to receive a status signal from the print engine in response to the commands sent, and to transfer the print engine ready data to the print engine after receiving the status signal.

Regarding claim 40, which recite limitations that are similar and in the same scope of invention as to those in claim 30 above; therefore, claim 40 are rejected for the same rejection rationale/basis as described in claim 30.

Claims 9-14, 41-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young No and Zelno as applied to claim 30 above, and further in view of Hirst et al (US 5930553).

Regarding claim 9, combinations of Young No and Zelno fail to teach and/or suggest a dynamic loading program for causing the processor to automatically manage download of the controller program from a source to the volatile memory.

Hirst teaches a well-known example of dynamic loading program for causing the processor to automatically manage download (automatically detecting new/updated

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version of printer controller software, col. 4, lines 45-67 and to performs automatically without human intervention, col. 2, lines 40-50) of the controller program from a source to the volatile memory.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify PC cards of Young No and Zelno to include a dynamic loading program for causing the processor to automatically manage download of controller program as taught by Hirst because it enhances the printer's operating efficiency and to improve output quality performance by updating new controller programs, and in addition, performs downloading and managing automatically without human intervention help reduces personnel costs.

Therefore, it would have been obvious to combine Young No and Zelno with Hirst to obtain the invention as specified in claim 9.

Regarding claim 10, Hirst further teaches wherein the dynamic loading program, determines whether a current version of the printer controller program resident in the volatile memory is not valid (prior to download the new/updated version of printer controller program, the printer controller 13 must determine and test whether the stored programs are valid, fig. 5, col. 2, lines 32-55), and selectively downloads from a host computer the printer controller program to the volatile memory of the printer controller if the current version of the printer controller program is not valid.

Regarding claim 12, Hirst further teaches wherein the printer controller program, when executing on the processor, receives print controller ready data and based thereon generates print engine ready data for controlling a print engine (printer controller 13 provides print engine ready data and transmits provided data to print engine, fig. 1, col. 4, lines 30-35).

Regarding claim 13, Hirst further teaches: an integrity check module (printer controller including a micro-controller 30, fig. 1), when executing on the processor, for performing an integrity check on the printer controller program to determine whether the

printer controller program is corrupted and re-installing the printer controller program from the source when the printer controller program is not corrupted (installing a new/updated version of printer controller program if the old printer controller program is incompatible and/or valid, fig. 5).

Regarding claim 14, Young No further teaches wherein the printer controller is embodied in one of a single integrated circuit (ASIC, col. 5, lines 5-6) and an application specific integrated circuit.

Regarding claim 41: Young No further teaches a means for storing in a memory (EEPROM 96, fig. 2) a printer controller program that generates the print engine ready data from the print controller ready data; and

means for automatically managing download of the printer controller program to a memory consisting of the memory (EEPROM 96, fig. 2). In addition, printer controller of Young NO also includes a volatile memory DRAM 98. It is well known in the art that printer controller program can be stored in any storage memory devices (e.g. RAM, DRAM, EEPROM, Flash Memory, and etc). Refers to "Conclusion Section" for pertinent prior arts in reference to such teachings.

Regarding claim 41, Hirst further teaches the means for automatically managing download determines whether a current version of the printer controller program resident in the volatile is not valid (installing a new/updated version of printer controller program if the old printer controller program is incompatible and/or valid, fig. 5) or non-existent, and downloads the printer controller program to the volatile memory of the printer controller if the current version of the printer controller is not valid or non-existent.

#### *Response to Arguments*

Applicant's arguments with respect to claims 30 & 40 have been considered but are moot in view of the new ground(s) of rejection using different interpretations of previously applied arts due to newly added features "printer controller is entirely disposed within a

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cable".

- Regarding claims 30 & 40, the applicants argued the cited prior arts of record (US 6587140 to Young No and US 5989051 to Zelno et al) fail to teach and/or suggest a printer controller is **entirely** disposed with a cable.

In response, the Examiner fully disagrees with applicant's arguments. Previously cited claims 30 & 40 did not include feature/limitation of which a printer controller is "**entirely**" disposed within a cable. However, upon further consideration of previously cited reference (US 5989051 to Zelno et al), both Young No and Zelno teach the newly added features/limitations. Printer controller circuit 90 as taught by Young No is entirely disposed inside a PC CARD 7 (figs. 1-3), and Zelno clearly teaches PC card controller circuit components (e.g. 704, fig. 7) is entirely disposed inside of a PC CARD 700, and furthermore, a PC CARD 700 as taught by Zelno is disposed inside a cable (cable 10, fig. 1). Only the connector plug 34 of the PC CARD 700 (as taught by Zelno) is exposed outside of the cable (figs. 1-2), and not the PC CARD controller circuit components 704 of fig. 7. The combined two references (Young No and Zelno) clearly teach the claimed invention (e.g. a printer controller is disposed entirely inside a cable). Doing so, it helps preventing PC card controller circuit from damaging from a constant pulling (col. 3, lines 20-25 of Zelno) and to reduce electromagnetic transmission that a PC card circuit component may interferes with other circuits or devices (col. 4, lines 13-25 of Zelno).

- Regarding claims 30 & 40, the applicants argued the combined references of the Young No and Zelno is not proper since disposing an entirely PC card 7 of Young No within a cable as taught by Zelno will prevent any interactions (via display interface of fig. 3 of Young No) between the user and the PC card.

In response, the Examiner fully disagrees with applicant's arguments. The combined references still teach the claimed invention (i.e. printer controller is entirely disposed within a cable, and wherein to receive the printer controller ready data from the printer controller ready data interface and to generate the print engine ready data). In addition, PC card 700 as taught by Zelno is entirely disposed inside a cable, but can also be remove and/or detach from the cable upon desire (fig. 7).

Regarding claims 38 & 41, the applicant argued the cited prior arts of record fail to teach and/or suggest the printer controller program is stored in a memory consisting of volatile memory.

Young No further teaches a means for storing in a memory (EEPROM 96, fig. 2) a printer controller program that generates the print engine ready data from the print controller ready data. In other words, Young No teaches an example of storing printer controller program in an EEPROM storage device, which argued as a non-volatile memory instead of a volatile memory as claimed. NOTES: printer controller of Young No also includes a volatile memory DRAM 98. It is well known in the art that printer controller program can be stored in any storage memory devices (e.g. RAM, DRAM, EEPROM, Flash Memory, and etc). Refers to "Conclusion Section" for pertinent prior arts in reference to such teachings.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US 20030193685 to Kageyama, teaches an example of storing a printer controller program in a volatile storage memory (RAM, par. 70).
- US 6982800 to Cavill et al, teaches an example of storing a printer controller program in a volatile memory (fig. 4, col. 6, lines 52-56).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thierry L. Pham whose telephone number is (571) 272-7439. The examiner can normally be reached on M-F (9:30 AM - 6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on (571)272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thierry L. Pham



DOUGLAS Q. TRAN  
PRIMARY EXAMINER

